/\* exp.java - compute e(x) \*/

public class exp1

{

static public double compute\_e()

{

double n, nf, result, term, eps;

result = 1;

nf = 1.0;

n = 1.0;

eps = 0.000000000000000001;

do {

term = 1.0/nf;

result += term;

n = n + 1.0;

nf = nf \* n;

} while (term > eps);

return result;

} /\* compute\_e \*/

static public double my\_exp( double x, double eps, double e)

{

double n, nf, xp, result, term, ek;

int k;

k = (int)x;

x = x - k;

ek = 1.0;

for (; k > 0; k--)

ek = ek \* e;

x = x - k;

System.out.println("ek = " + ek + ", k = " + k + ", x = " + x);

result = 1.0;

xp = x;

nf = 1.0;

n = 1.0;

do {

term = xp/nf;

result += term;

xp = xp\*x;

n = n + 1.0;

nf = nf \* n;

} while (term > eps);

result = ek\* result;

return result;

} /\* exp \*/

public static void main(String args[])

{

double sqr\_root\_e, lib\_value, e;

e = compute\_e();

System.out.println("e = " + e);

System.out.println("lib e = " + Math.exp(1));

sqr\_root\_e = my\_exp(3.7, 0.000000000001, e);

lib\_value = Math.exp(3.7);

System.out.println("Our value = " + sqr\_root\_e+" , Lib value = " +

lib\_value);

} /\* main \*/

} // exp1

פלט ריצה:

e = 2.7182818284590455

lib e = 2.7182818284590455

ek = 20.085536923187675, k = 0, x = 0.7000000000000002

Our value = 40.44730436006734 , Lib value = 40.4473043600674

/\* sin2.java - compute sin(x) in radians, using the taylor series \*/

/\* Compute sin(x) within epsilon \*/

public class sin2

{

static public double my\_abs( double x)

{

if ( x >= 0)

return x;

else

return -x;

} /\* my\_abs \*/

public static double pi;

public static double my\_sin( double x, double eps)

{

double sinx, xx, nf, R, xp, n, sign, flag;

int k;

flag = 1.0;

if (x < 0)

{

flag = -1.0;

x = 0 - x;

} /\* if \*/

if ( x> 2\*pi)

{

k = (int) (x/(2\*pi));

x = x - k\*2\*pi;

if (x > pi)

{

x = x - pi;

flag = -1.0 \*flag;

} /\* if \*/

if (x > pi/2.0)

x = pi - x;

} /\* if \*/

xx = x\*x;

nf = 1.0;

sinx = 0.0;

xp = x;

n = 1.0;

sign = 1.0;

do

{

R = my\_abs(xp / nf) ;

sinx = sinx + sign \* R;

sign = - sign;

xp = xp \* xx;

nf = nf \* ((n+1.0)\*(n+2.0));

n = n + 2.0;

} while( R >= eps );

return flag \* sinx;

} /\* my\_sin \*/

public static void main(String args[])

{

double x, eps, y;

pi = 3.141592653589793238;

x=-(7\*180-53)\*pi/180.0;

eps = 0.00000000001;

y = my\_sin(x, eps);

System.out.println("\nsin(" + x +"), within " + eps +

", = " + y);

System.out.println("\nlib value sin(" + x + " %) = " +

Math.sin(x));

} /\* main \*/

} // sin2

פלט ריצה:

sin(-21.066124071571558), within 1.0E-11, = -0.7986355100472917

lib value sin(-21.066124071571558 %) = -0.7986355100472929